Summit Utilities, Inc.

2008 Western Conference of Public Service Commissioners

DECISION MAKING IN A SEA OF INFORMATION

Tim Johnston – Summit Utilities
Kent Taylor - KTM

Presentation Goal

- To identify and discuss important natural gas market decision indicators that might affect long term policy decisions by regulators
- Add a few arrows to your quiver

Summit Utilities, Inc.

The Judgment Environment

- Natural gas markets matter to regulators

The Judgment Environment

- Natural gas markets matter to regulators
- The regulatory landscape is littered with natural gas market implications

Summit Utilities, Inc.

The Judgment Environment

- Natural gas markets matter to regulators
- The regulatory landscape is littered with natural gas market implications
- Regulators implement legislative initiatives and construct policy that depend on a knowledge of fuel markets

Summit Utilities, Inc.

The Judgment Environment

- Natural gas markets matter to regulators
- The regulatory landscape is littered with natural gas market implications
- Regulators implement legislative initiatives and construct policy that depend on a knowledge of fuel markets
- There is no commodity that affects utility consumers as pervasively as natural gas

Summit Utilities, Inc.

The Judgment Environment

- Natural gas markets matter to regulators
- The regulatory landscape is littered with natural gas market implications
- Regulators implement legislative initiatives and construct policy that depend on a knowledge of fuel markets
- There is no commodity that affects utility consumers as pervasively as natural gas
- Regulators cannot regulate the market price of natural gas

Summit Utilities, Inc.

Why Does the Identification of Decision/Judgment Indicators Matter to You?

- Decision making quality is enhanced with knowledge of long term market trends and the factors that affect these trends
- You are awash in information but must be selective about that which is meaningful
- Selecting valid information increases the probability of valid judgments

Summit Utilities, Inc.

Regulatory Applications for Decision Indicators

- Rate design
- Integrated Resource Planning
- Certificate filings
- Purchased power, fuel, and natural gas cost recovery rules

Summit Utilities, Inc.

Fundamental Propositions

- Abundant Supply of Methane on the Planet
- Natural gas will be the bridging mechanism to the future
- Renewable energy sources will not materially affect the demand for natural gas

Summit Utilities, Inc.

Fundamental Propositions . . .

- Canadian imports will not, in the long term, support additional domestic demand
- Temporary western area supply-demand imbalances will evaporate
- We are not yet in a world market for natural gas but the trend is clear

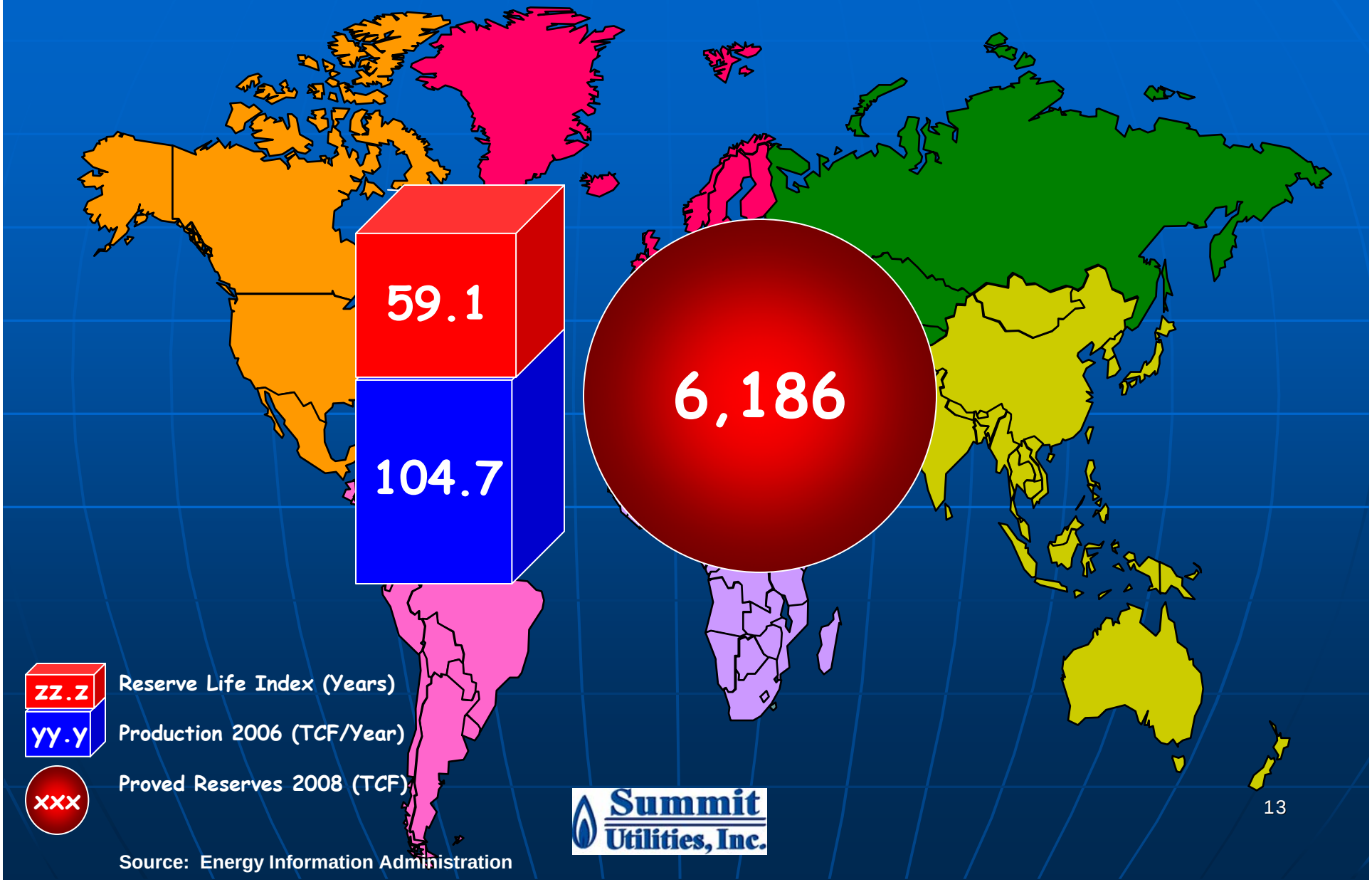
Summit Utilities, Inc.

Context
World / Continent / USA / Regional

- The world is awash in methane

Summit Utilities, Inc.

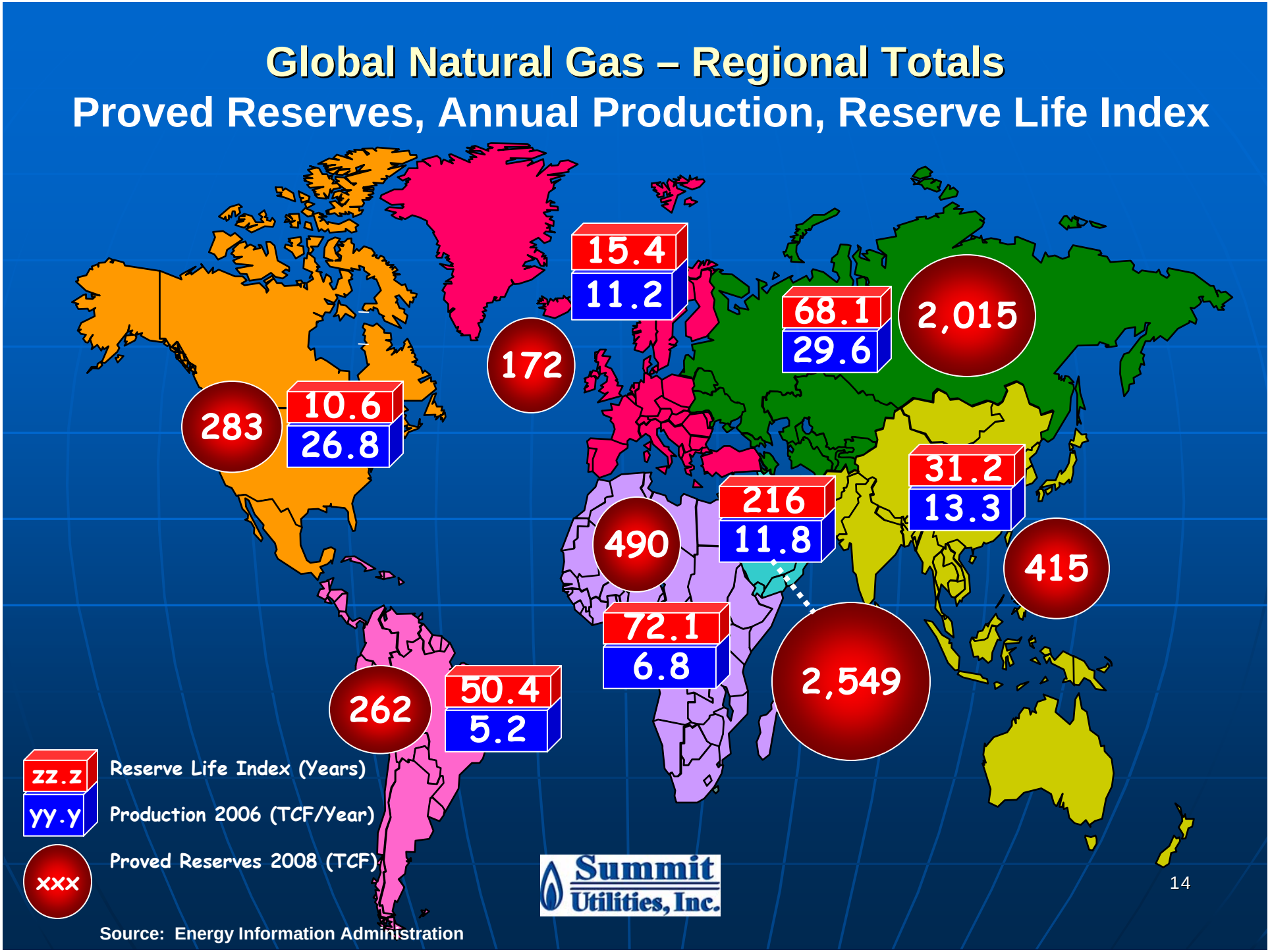
Global Natural Gas – Worldwide Total
Proved Reserves, Annual Production, Reserve Life Index



Source: Energy Information Administration

Summit Utilities, Inc.

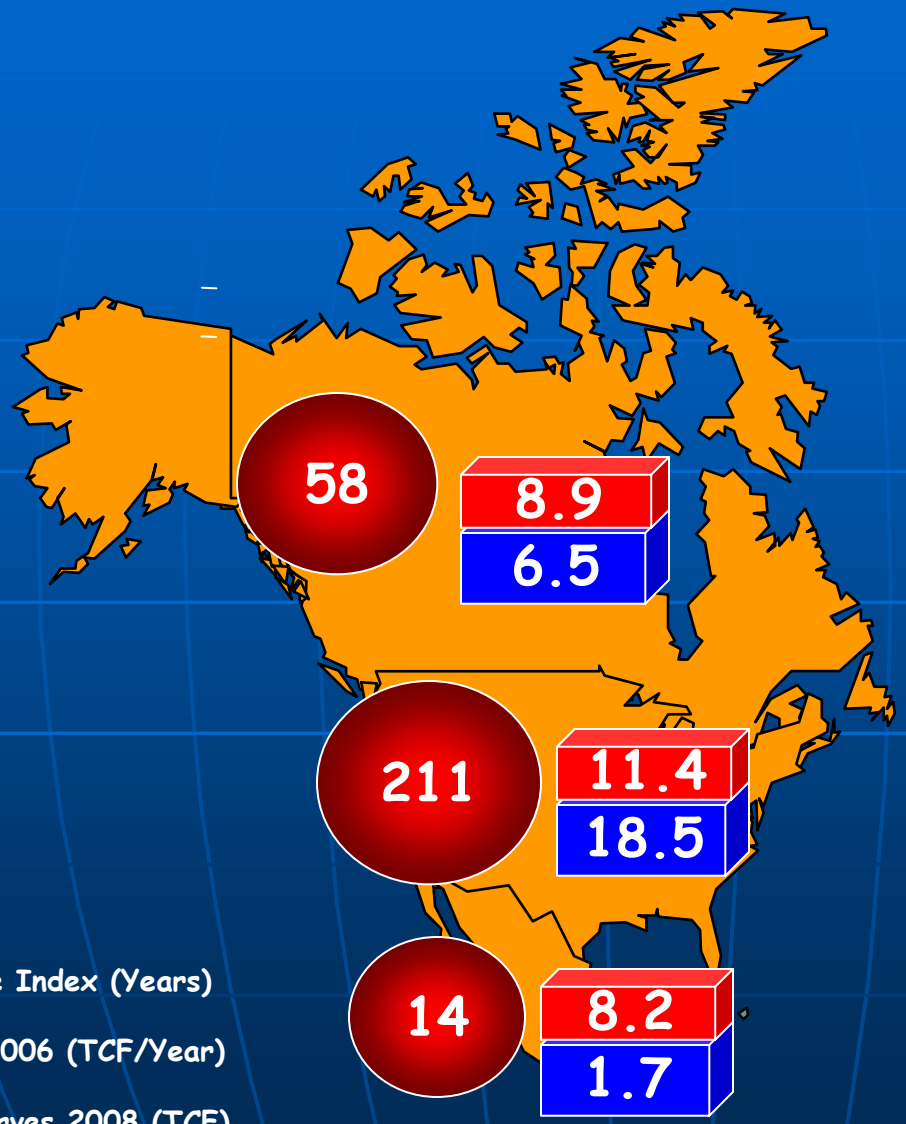
Global Natural Gas – Regional Totals
Proved Reserves, Annual Production, Reserve Life Index



Source: Energy Information Administration

Summit Utilities, Inc.

North America Natural Gas – Regional Totals
Proved Reserves, Annual Production, Reserve Life Index



zz.z Reserve Life Index (Years)

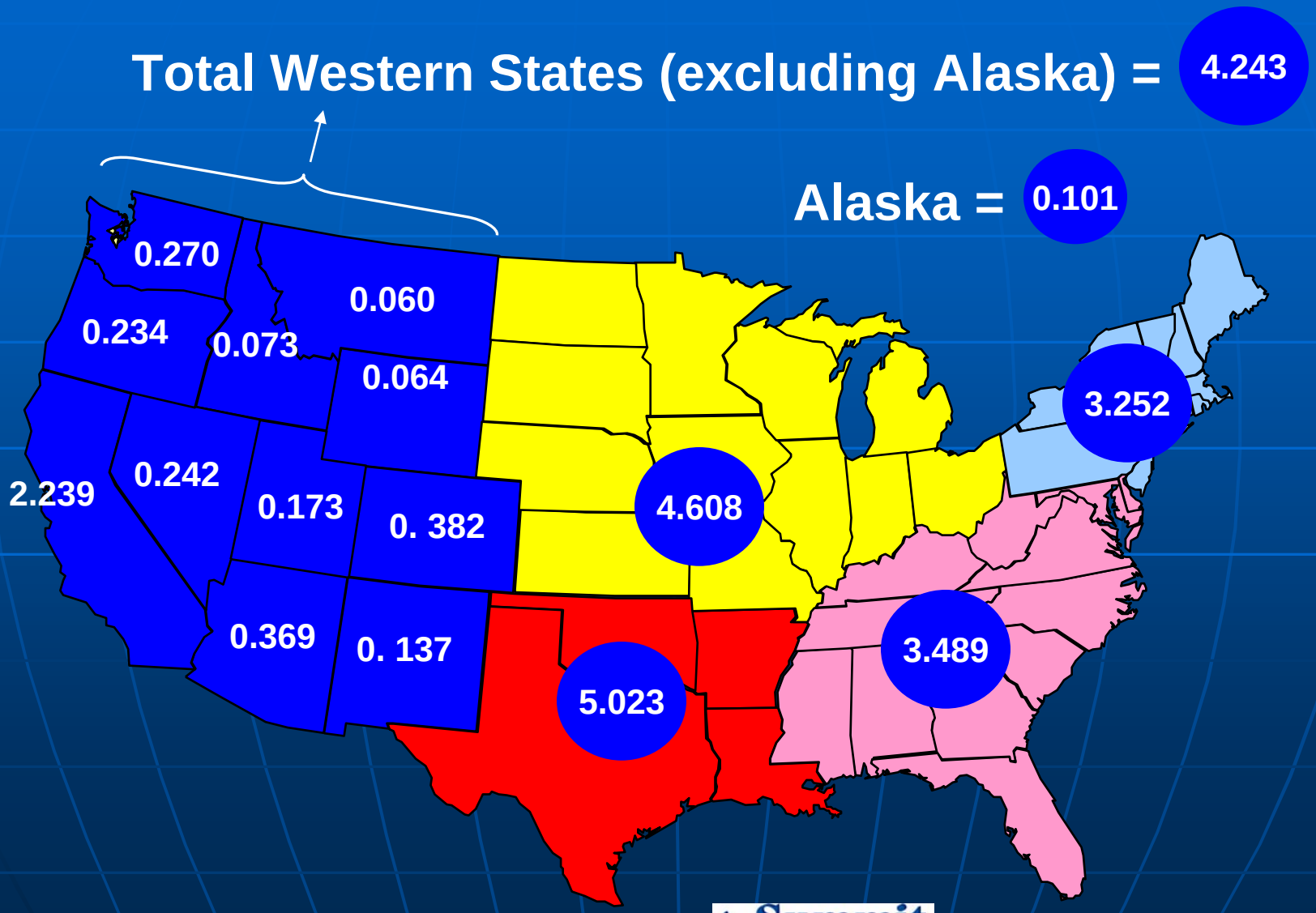
yy.y Production 2006 (TCF/Year)

xxx Proved Reserves 2008 (TCF)

Source: Energy Information Administration

Summit Utilities, Inc.

U.S.A. Natural Gas Consumption (TCF/Year)



Source: 2006 & 2007 Energy Information Administration

Summit Utilities, Inc.

Decision Indicators

- Definition: Information that informs judgments and decisions
- Real: indicators that actually help predict long term trends
- False/misleading: indicators that are unrelated to the long term or are simply wrong

Summit Utilities, Inc.

Short Term vs. Long Term

- Short term indicators tend to support and inform immediate pricing decisions;
  - Supply Disruptions (i.e., Hurricanes, plant outages, pipeline failures, etc.)
  - Storage withdrawals and injections
  - Forecasted Temperatures
- Long term indicators provide insights about long term market trends

Summit Utilities, Inc.

Fallibility and the Need for Multiple Indicators

- Judgment/decision indicators are fallible because they focus on the future
- Fallibility dictates the need for multiple indicators
- So, multiple fallible indicators are required for high-powered judgments

Summit Utilities, Inc.

Multiple Decision Indicators for Long Term Natural Gas Market Trends

- LNG Capacity Utilization
- State Government Initiatives
- Canadian Imports
- Potential Gas Committee Report

Summit Utilities, Inc.

Decision Indicators: LNG Capacity Utilization

- Will tend to confirm insights about price setters vs. price takers
- LNG represents the economic margin
- Existing and imminent domestic capacity
- Current load factors
- Proposed facilities are irrelevant

Summit Utilities, Inc.

U.S.A. LNG Import Terminals

2006 Existing Capacity (Bcfd) = 5.335

2008 Completed/Under Construction (Bcfd) = 14.30

Source: EIA, FERC

Summit Utilities, Inc.

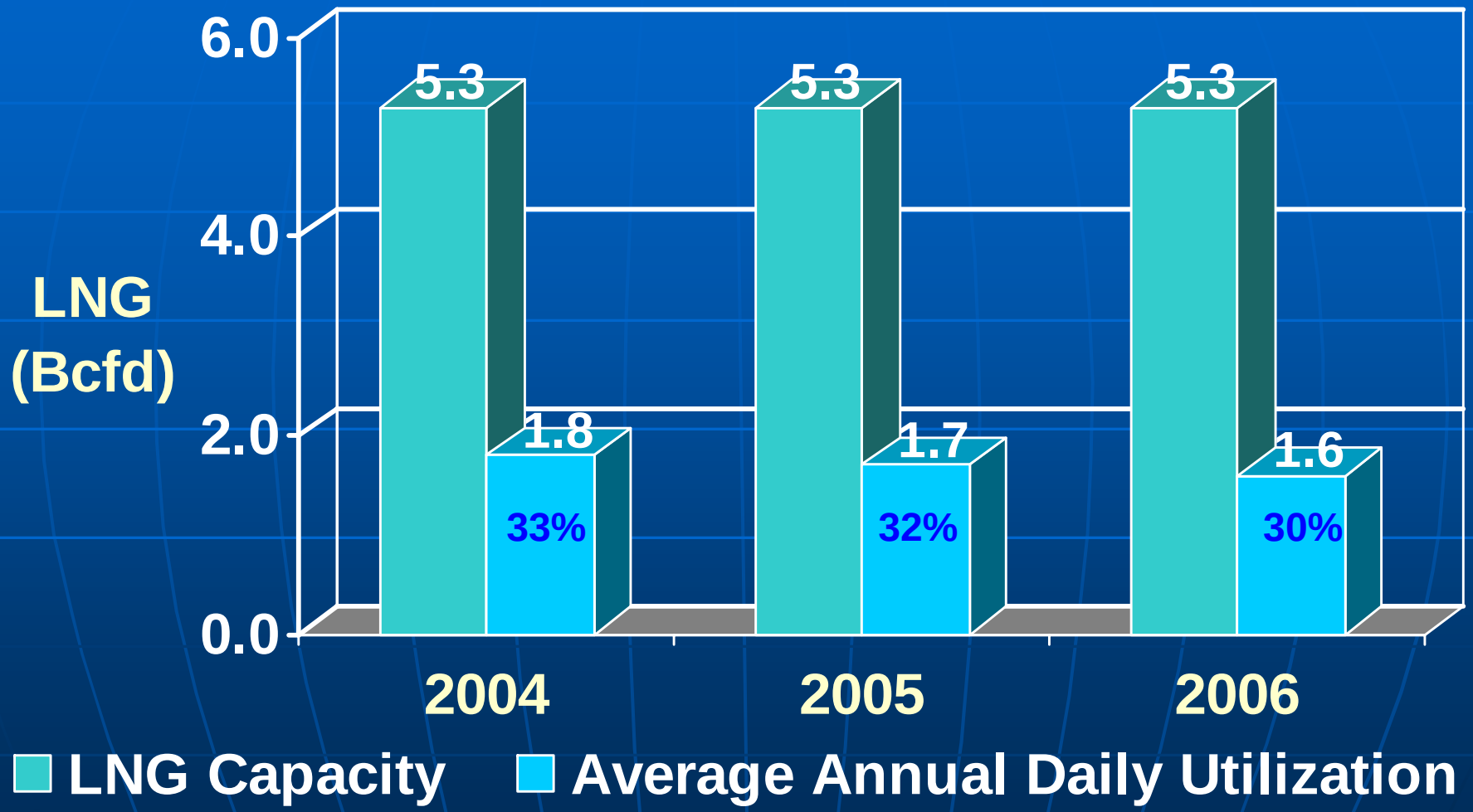
U.S.A. LNG Import Terminals

Existing (2006)	Capacity (Bcfd)
1 Everett, MA - Tractebel	1.035
2 Cove Point - Dominion	1.000
3 Elba Island - Southern LNG	2.100
4 Lake Charles - Trunkline	1.200
Total	5.335

New and Under Construction (2008)	
5 Golden Pass - Exxon/Qatar	2.000
6 Cameron - Sempra	1.800
7 Costa Azul - Sempra	1.500
8 Freeport - Cheniere	1.500
9 Sabine Pass - Cheniere	4.000
10 Offshore Boston - Excelerate	0.800
11 Cove Point Expansion - Dominion	0.800
12 Elba Island Expansion – Southern LNG	0.900
13 Canaport – Irving Oil	1.000
Total	14.300
GRAND TOTAL	19.635

Summit Utilities, Inc.

LNG UTILIZATION AS MARKET INDICATOR



Source: Energy Information Administration

Summit Utilities, Inc.

Decision Indicators: State Government Initiatives

- Renewable portfolio standards vs. GHG reductions
- Renewable portfolio standards: no dramatic direct impact on natural gas demand
- Greenhouse gas emission reductions: natural gas is the bridging mechanism from coal

Summit Utilities, Inc.

Decision Indicators: State Government Initiatives

- California Focus
- SB 1368
- Prohibits long term utility commitments to purchase or generate from coal fired power plants
- Potential outcomes
  - Interstate transfer of coal based power
  - Increased day ahead and hour ahead purchases
  - Elimination of coal based power from regional portfolio

Summit Utilities, Inc.

Decision Indicators: State Government Initiatives . . .

- **Potential Effect of California SB 1368:**

2006 gWh from coal	46,235
Replacement heat rate (Btu/kwh)	7,000

Daily natural gas required to replace gWh's from coal

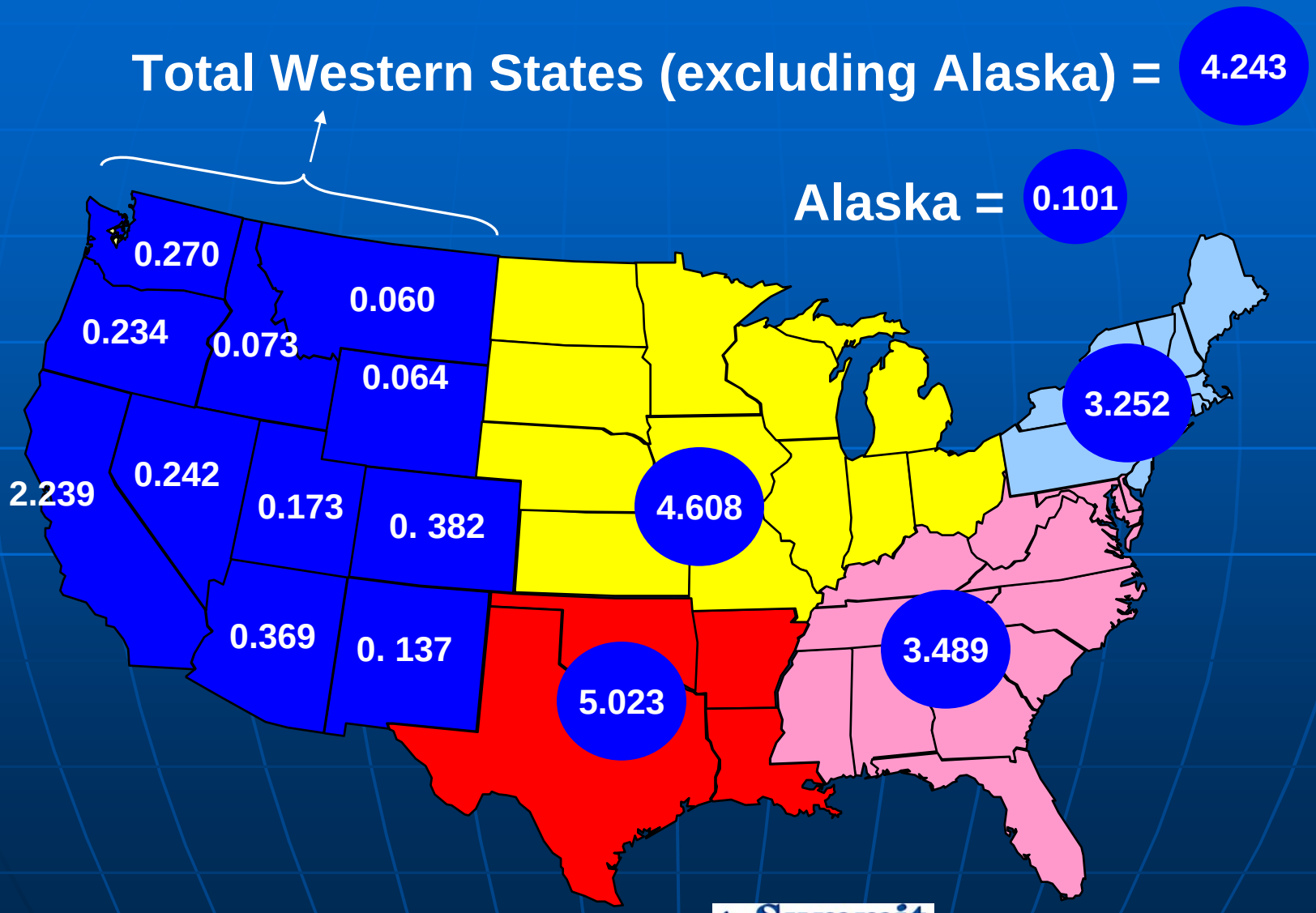
0.9 Bcf/day

0.33 Tcf/year

Source: California Energy Commission

Summit Utilities, Inc.

U.S.A. Natural Gas Consumption (TCF/Year)



Source: 2006 & 2007 Energy Information Administration

Summit Utilities, Inc.

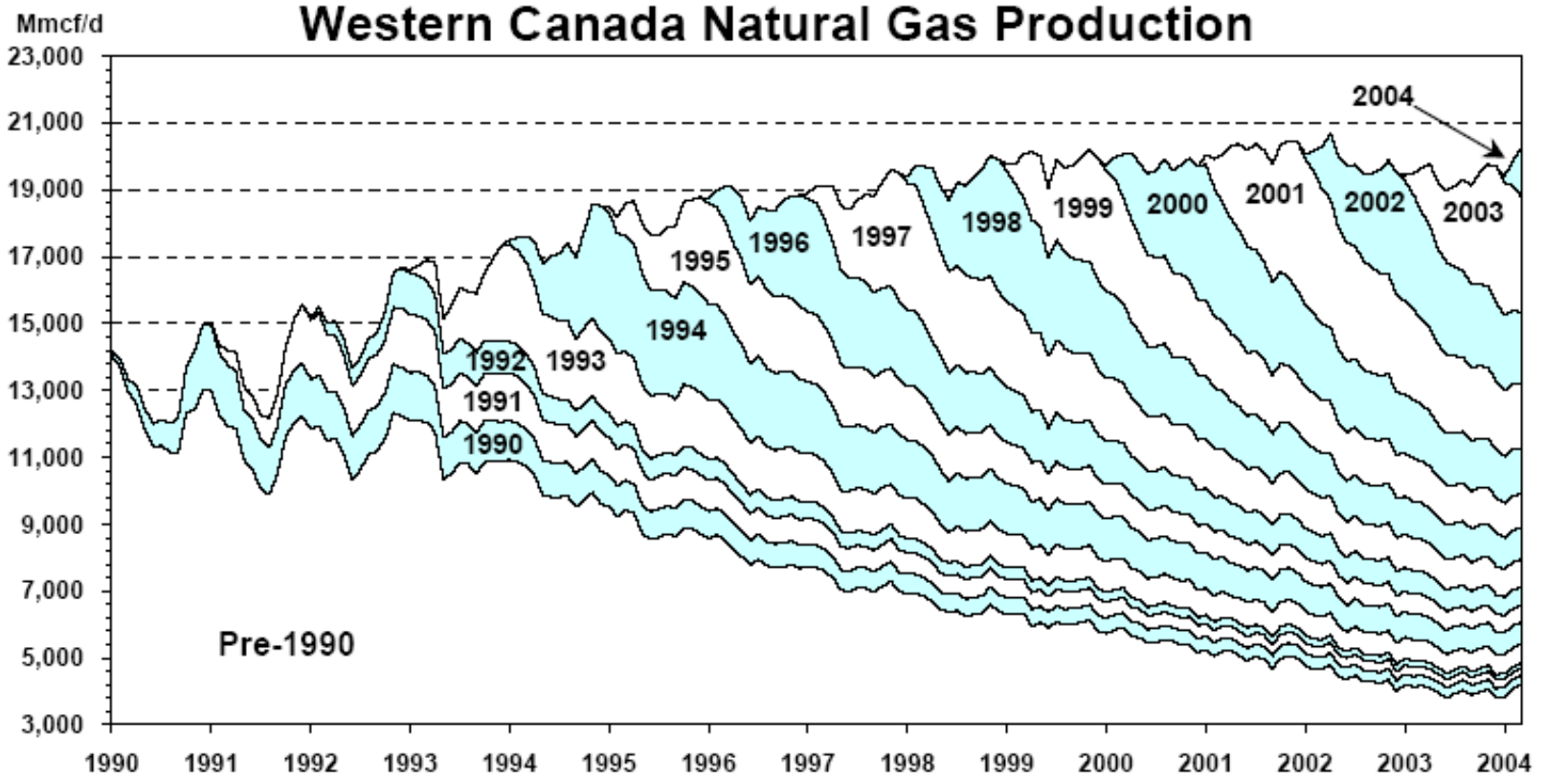
Decision Indicators: Canadian Imports

- The numbers:
  - WCSB production and exports to USA flat since 2002
  - 3.6 Tcf per year to USA
  - 6.5 Tcf per year total production
  - 58 Tcf reserves in 2007
- EIA projection: Exports to USA will decline to 1.2 Tcf by 2030
- Drilling activity vs. reserves (see graph)

Source: Energy Information Administration

Summit Utilities, Inc.

Canadian Decline Rates



Decline Rate for Underlying Production

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004e
7.1%	7.8%	0.9%	13.0%	14.9%	14.2%	17.4%	16.8%	18.3%	18.2%	21.1%	18.8%	22.5%	19.8%	21.0%

Source: FirstEnergy Capital Corp., AccuMap by IHS Energy.

Decision Indicators: Canadian Imports . . .

- Mackenzie Delta Pipeline and Alaska production are over even the long term planning horizon.
- Oil sands will absorb Mackenzie
- WCSB production is on a tread mill
- Conclusion: Canada will not contribute to increased USA supply

Summit Utilities, Inc.

Decision Indicators: Potential Gas Committee Report

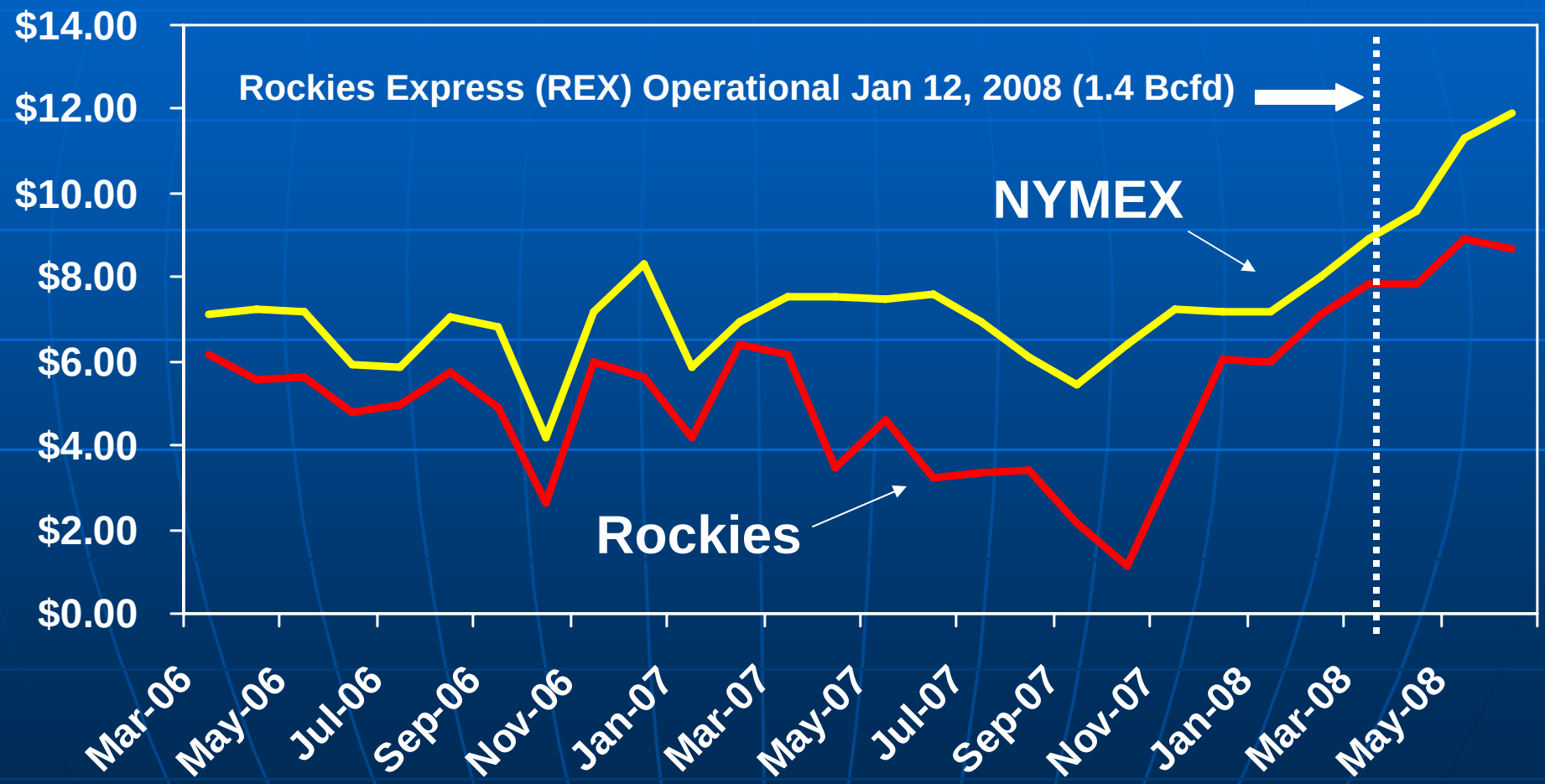
- Biennial study – last report 12/31/06
- Disciplined, comprehensive examination of potential resources
- Supplements DOE proved reserves data
- Ultimate recoverable resource indicates resource additions

Summit Utilities, Inc.

False / Misleading Decision Indicators

- Regional supply imbalances

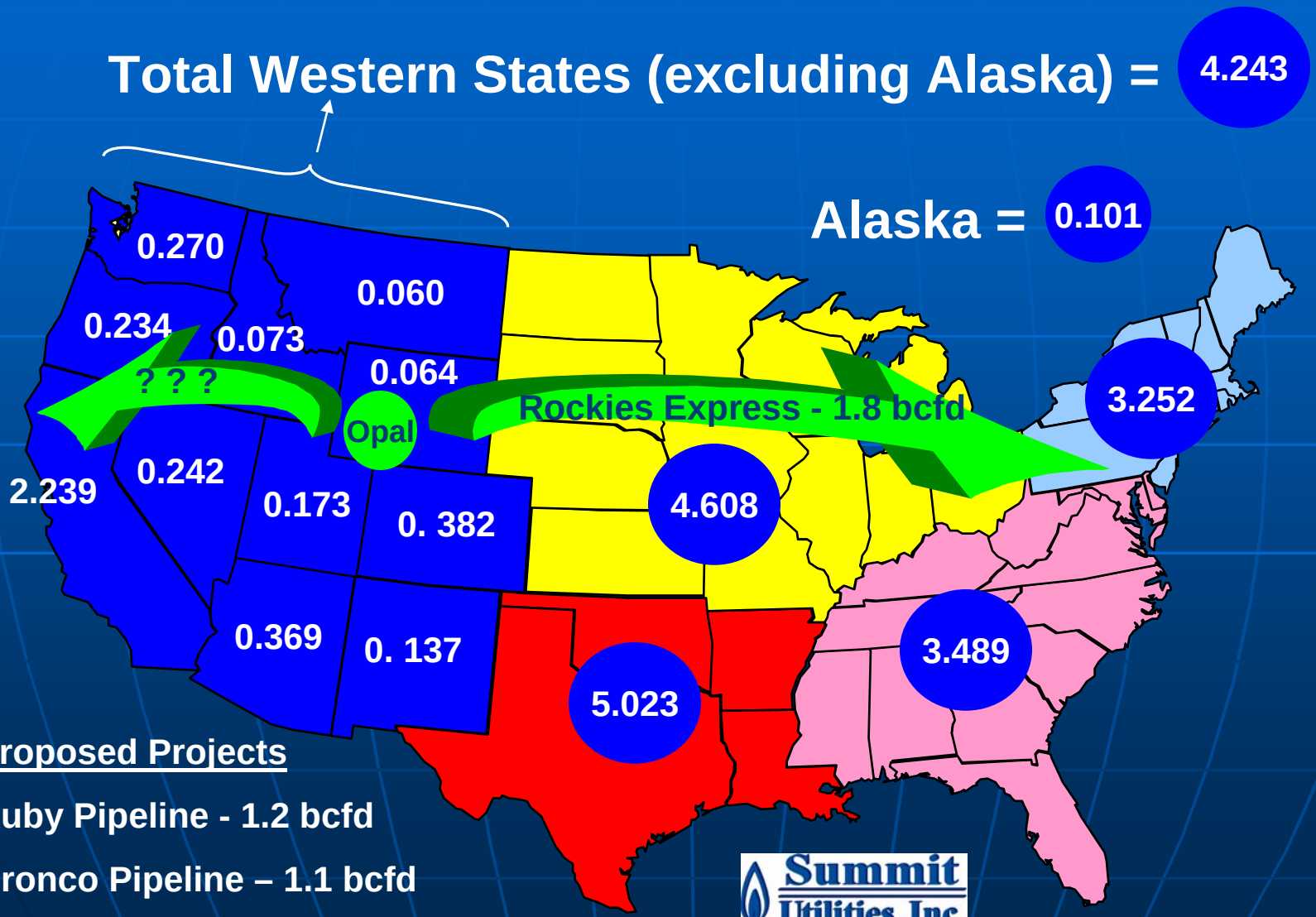
NATURAL GAS PRICING
Rocky Mountains vs. NYMEX



Summit Utilities, Inc.

U.S.A. Natural Gas Consumption (TCF/Year)

New/Proposed Interstate Pipelines from the Rocky Mountains



Proposed Projects

Ruby Pipeline - 1.2 bcfd

Bronco Pipeline – 1.1 bcfd

Sunstone Pipeline – 1.2 bcfd

Summit Utilities, Inc.

Source: 2006 & 2007 Energy Information Administration

False / Misleading Decision Indicators

- Regional supply imbalances
- Drilling activity without correlation to reserves and deliverability

Summit Utilities, Inc.

Sources

- Human Judgment and Social Policy, Kenneth R. Hammond, Oxford University Press, 1996

- Energy Information Administration
- Northwest Gas Association
- Canadian Association of Petroleum Producers
- California Energy Commission
- California Public Utilities Commission

Summit Utilities, Inc.